Title (en)

SURFACE-COATED CUTTING TOOL WITH HARD COATING LAYER EXHIBITING EXCELLENT CHIPPING RESISTANCE AND PEELING RESISTANCE

Title (de)

OBERFLÄCHENBESCHICHTETES SCHNEIDWERKZEUG MIT HARTER BESCHICHTUNG MIT HERVORRAGENDER ZERSPANUNGSBESTÄNDIGKEIT UND ABLÖSEFESTIGKEIT

Title (fr)

OUTIL DE COUPE À REVÊTEMENT DE SURFACE DOTÉ D'UNE COUCHE DE REVÊTEMENT DUR PRÉSENTANT UNE EXCELLENTE RÉSISTANCE À L'ÉCAILLAGE ET UNE EXCELLENTE RÉSISTANCE DE PELAGE

Publication

EP 3505282 A4 20200506 (EN)

Application

EP 17845751 A 20170329

Priority

- JP 2016166818 A 20160829
- JP 2017012911 W 20170329

Abstract (en)

[origin: EP3505282A1] Provided is a surface-coated cutting tool in which a hard coating layer has excellent chipping resistance and peeling resistance during high-speed intermittent cutting and exhibits excellent cutting performance during long-term use. In the surface-coated cutting tool in which the hard coating layer including at least three layers of an upper layer α, an adhesion layer β, and a lower layer γ is formed, the upper layer α is formed of an α-AlOlayer formed under low temperature conditions, the adhesion layer β includes at least a TiCN layer having a layer thickness of at least 0.5 μm or more in an outermost layer being in contact with an interface with the upper layer α and contains 0.5 to 3 μm only to a maximum depth of 0.5 μm toward the inside in a layer thickness direction of the TiCN layer from the interface between the TiCN layer and the upper layer α, and the lower layer γ is formed of (TiAl)(CN) of a single phase of a NaCl type face-centered cubic structure, in which an average content ratio Xof Al and an average content ratio Yof C in this composition formula satisfy 0.60 ≤ X≤ 0.95 and 0 ≤ Y≤ 0.005 (Xand Yare in atomic ratio).

IPC 8 full level

B23B 27/14 (2006.01); **B23C 5/16** (2006.01); **C23C 16/02** (2006.01); **C23C 16/34** (2006.01); **C23C 16/36** (2006.01); **C23C 16/40** (2006.01); **C23C 28/04** (2006.01)

CPC (source: EP US)

B23B 27/14 (2013.01 - EP US); **B23C 5/16** (2013.01 - EP US); **C23C 16/0272** (2013.01 - EP); **C23C 16/303** (2013.01 - US); **C23C 16/34** (2013.01 - EP); **C23C 16/36** (2013.01 - EP US); **C23C 16/403** (2013.01 - EP US); **C23C 28/042** (2013.01 - US); **C23C 28/044** (2013.01 - EP US); **C23C 28/048** (2013.01 - EP); B23B 2224/04 (2013.01 - US); B23B 2224/24 (2013.01 - US); B23B 2224/32 (2013.01 - US)

Citation (search report)

- [YA] JP 2016124099 A 20160711 - MITSUBISHI MATERIALS CORP
- [Y] US 2014287210 A1 20140925 - TOMITA KOHEI [JP], et al
- [A] US 7887935 B2 20110215 - ELKOUBY MARCEL [IL], et al
- [A] JP 2015085417 A 20150507 - KYOCERA CORP
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Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)

EP 3505282 A1 20190703; **EP 3505282 A4 20200506**; **EP 3505282 B1 20221109**; CN 109641286 A 20190416; CN 109641286 B 20200807; JP 2018034216 A 20180308; JP 6905807 B2 20210721; US 11278967 B2 20220322; US 2021220919 A1 20210722; WO 2018042740 A1 20180308

DOCDB simple family (application)

EP 17845751 A 20170329; CN 201780052368 A 20170329; JP 2016166818 A 20160829; JP 2017012911 W 20170329; US 201716326637 A 20170329